US Army Corps of Engineers
US Geological Survey
SUSTAINABLE RIVERS PROJECT

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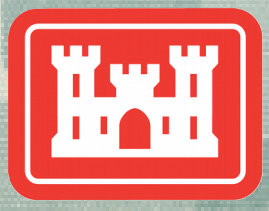

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Background

- Collaboration between USACE and The Nature Conservancy
- Goal is to protect the ecological integrity of affected ecosystems while meeting inter-generational human needs for water and maintaining or enhancing authorized project purposes

Background

- Based on environmental flow pilot project on the Green River, KY
- Formally launched in 200
  the SRP now includes eight river basins across the Nation that contain 36 Corps dams
- USGS science support starting in 2008

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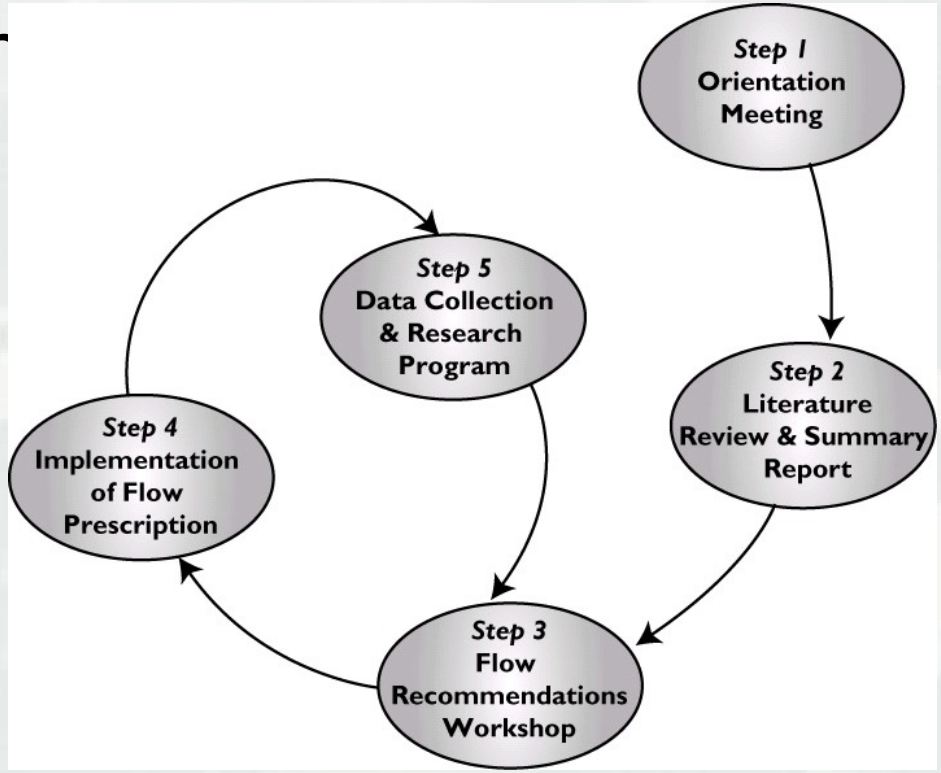
Willamette River
Bill Williams River
Big Cypress Bayou/ Caddo Lake
White River
Black River
Little Red River
Green River
West River
Ashuelot River
Roanoke River
Savannah River
Washington
Oregon
California
Nevada
Idaho
Montana
Wyoming
Utah
Arizona
Colorado
New Mexico
North Dakota
South Dakota
Nebraska
Kansas
Oklahoma
Texas
Minnesota
Iowa
Missouri
Arkansas
Louisiana
Wisconsin
Michigan
Illinois
Indiana
Ohio
Kentucky
Tennessee
Mississippi
Alabama
Georgia
Florida
South Carolina
North Carolina
Virginia
West Virginia
Pennsylvania
New York
Maryland
Delaware
New Jersey
Connecticut
Rhode Island
Mass.
VT.
N.H.
Maine
Key
Sustainable Rivers Project current site
Major river

Defining Environmental Flows

- The “Savannah Process” is science-based adaptive management approach to define and implement enviror



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Technology Transfer

- USACE and TNC transferring environmental flow process overseas
  - ►Yangtze River, China
  - ►Magdalena River, Colombia
  - ►Zambezi River Basin, SE Africa

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Sustainable River Project

Success through…

- ➥ Demonstration Sites
- Staff sharing (IPA, internships)
- Joint training (2 courses/yr @ HEC)
- Joint software development (Pulsinator)
- Annual meetings
- Coordinated communications and joint publications

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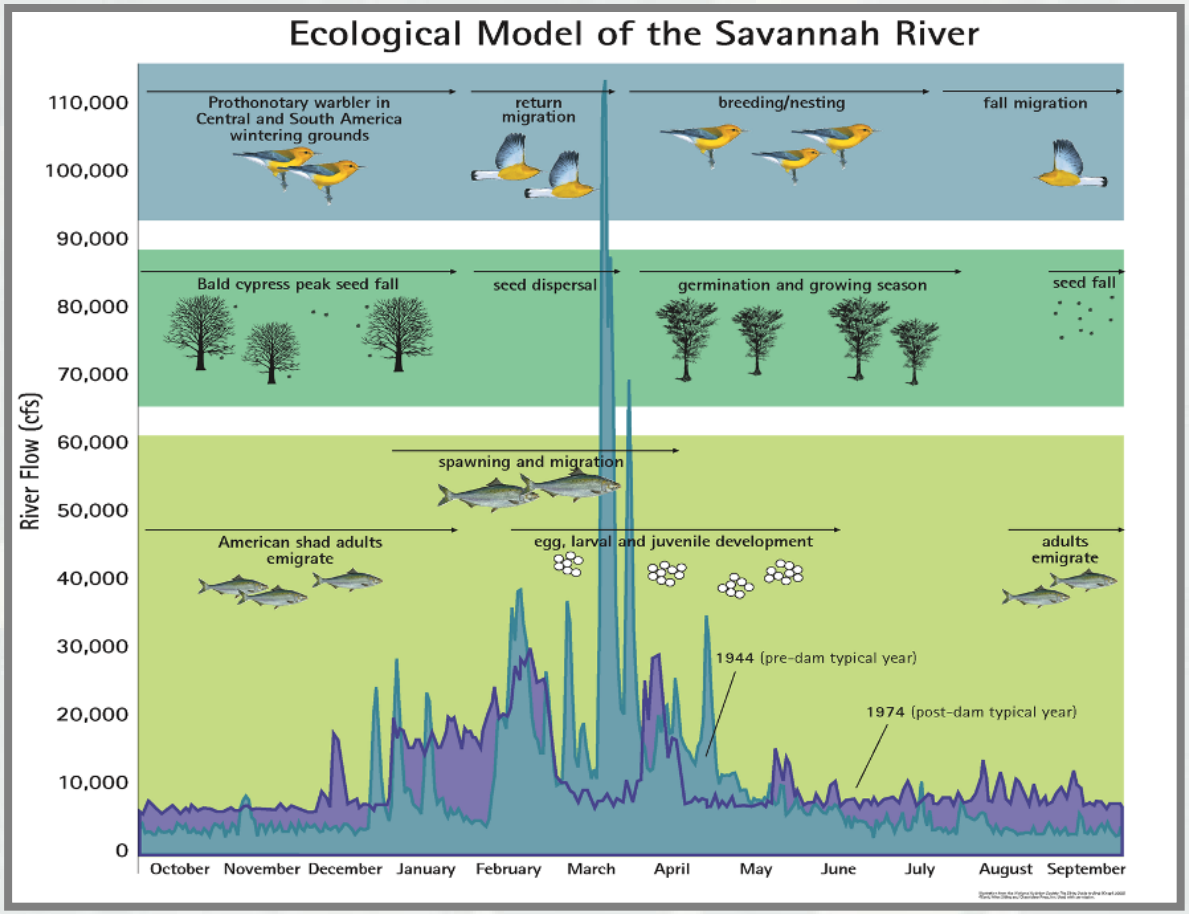
Mapping seasonal streamflow patterns on to life histories of biological targets to determine environmental flow requirements



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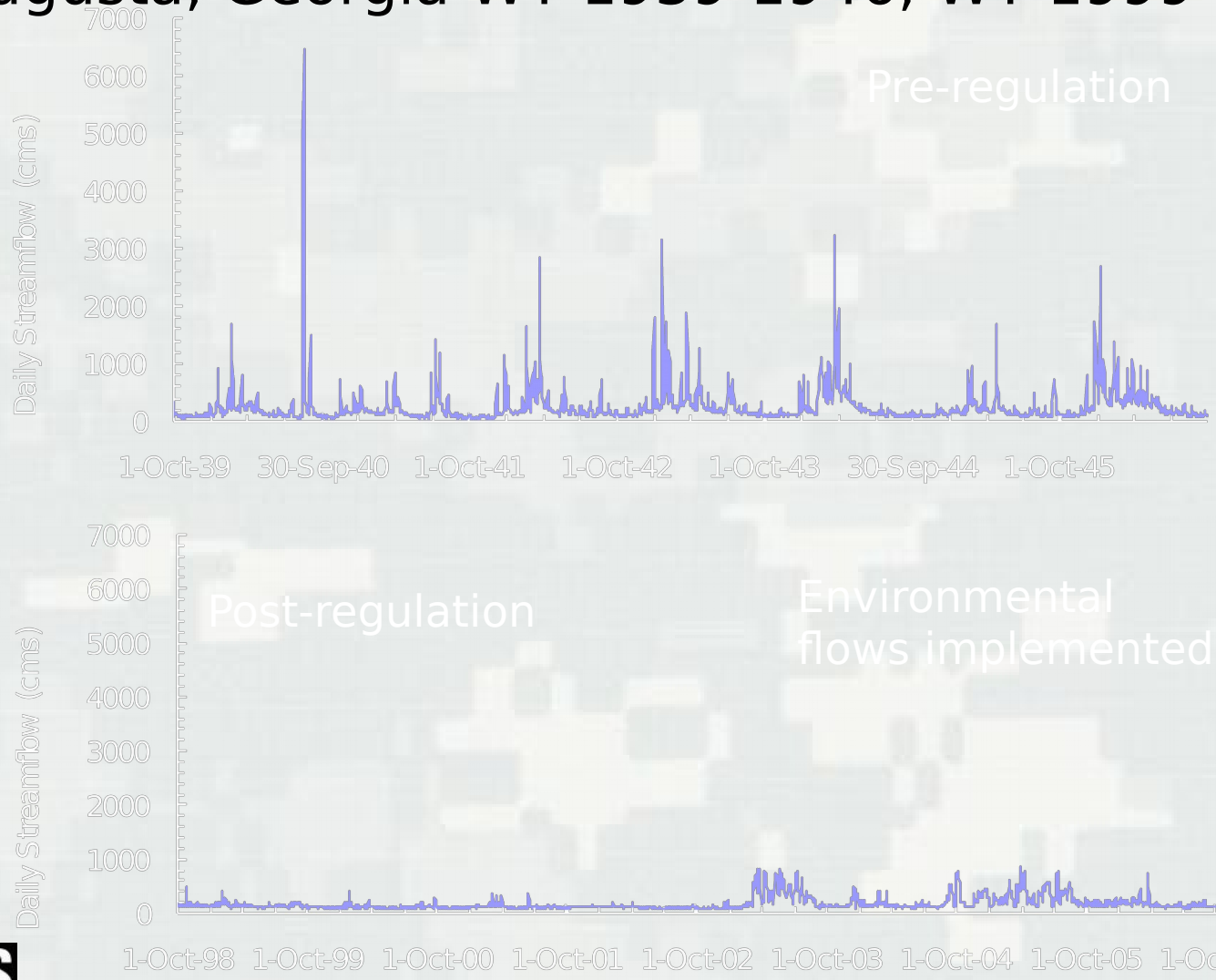
Historical Perspective on Flow Experiments
Daily Streamflow for the Savannah River at Augusta, Georgia WY 1939-1946, WY 1999-2006



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Science Needs

- Development of environmental flow prescriptions requires technical review and summary of existing literature on flow-ecology relations and site-specific information.
- Environmental flow prescriptions have to be translated into operating rules, which is facilitated by reservoir operation models.
- Changes in reservoir operations (water control plans) requires environmental assessment.
- Environmental flow releases often depend on real-time conditions and cannot be planned with complete certainty – need to have the capacity to mobilize quickly for data collection.
- Evaluation of environmental flows in the SRP has been ad hoc, relying on the initiative of partners and researchers. It does not need to be a permanent activity at SRP sites, but verification of ecological outcomes is needed.

QUESTIONS?